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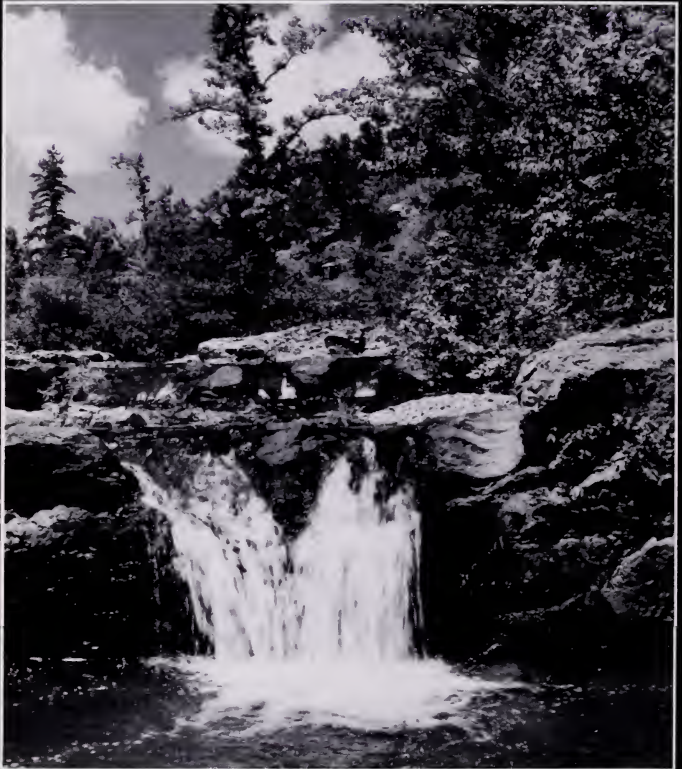
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O AQUATIC

LEARNING CENTER

Ecosystem Management



Ouachita National Forest
Arkansas

Forest



Service

United States Department of Agriculture



Basin Area Stream Surveys help monitor changes in the chemical, biological, and physical characteristics of streams.

The Little Missouri River corridor offers outstanding views.



Periodic sampling of fish populations provides clues about changes occurring in stream ecosystems.

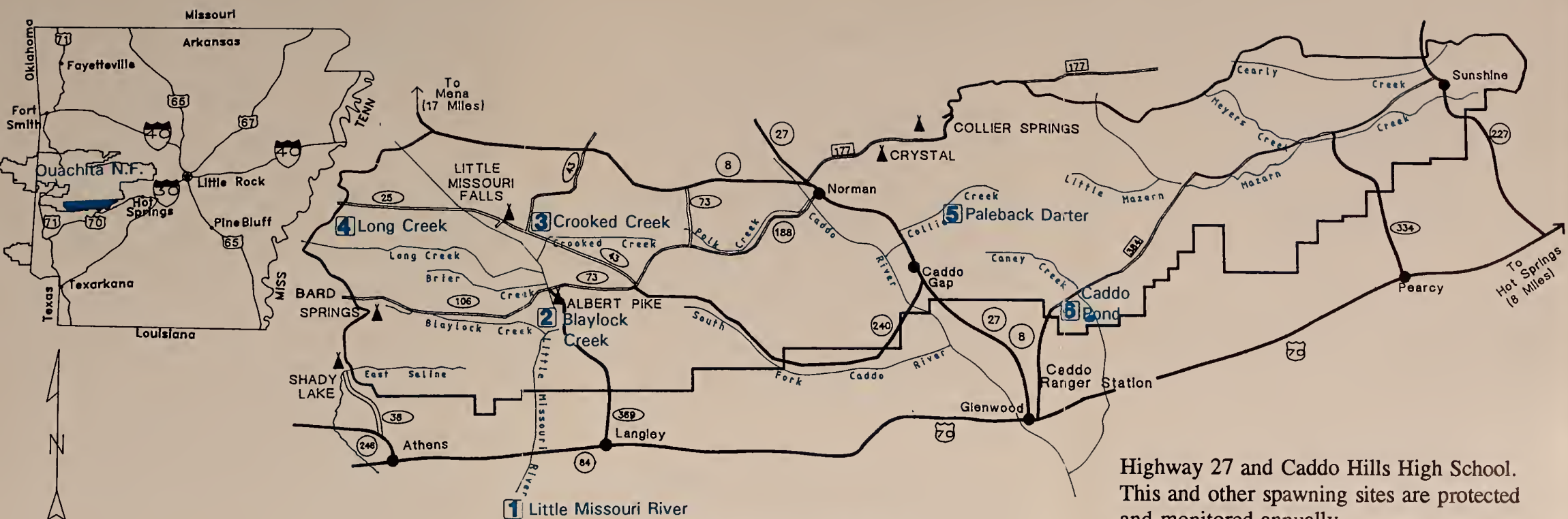
The Caddo Aquatic Learning Center is part of Ecosystem Management, an approach designed to better blend environmental protection and human uses on national forests.

This brochure will share with you some of these efforts and locate where you can visit some outstanding streams and ponds on the Forest.

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Streamside Management Zones. One way to protect aquatic areas is with streamside management zones. The Ouachita National Forest maintains no-cut undisturbed areas along all streams, even where water flows only infrequently. The width of these zones varies, but is at least 100 feet on either side of streams that flow all year, and at least 30 feet on streams that flow infrequently. These buffer zones protect water quality from other forest uses such as timber harvest by keeping stream banks stable and filtering any sediment. They also provide habitat diversity, serve as travel corridors for wildlife and improve the appearance of timber harvest areas. Good examples of these zones can be found throughout this district.

1. Little Missouri River. Another way of protecting unique aquatic areas is through designation of special areas. The Little Missouri River is one of two rivers on the Ouachita National Forest designated as Wild and Scenic. This congressional designation protects the integrity and beauty of the river. Good places to experience this river are Albert Pike and Little Missouri Falls Recreation Areas. Albert Pike includes developed camping along with fishing, swimming, and seasonal canoeing. Little Missouri Falls offers spectacular water falls over bedrock into deep clear pools.



Highway 27 and Caddo Hills High School. This and other spawning sites are protected and monitored annually.

Paired Stream Study: 2. Blaylock Creek & 3. Crooked Creek. Protection must be coupled with monitoring to ensure that streams remain healthy. Two streams--Blaylock and Crooked Creeks--are helping us understand stream ecology and the effects of people's uses. These two streams are very similar in most ways, but differ in the type of forest management occurring on surrounding lands from which they flow. By comparing fish populations, water chemistry, and bank conditions found on these streams, we can evaluate effects of forest management. Similar stream pairs are being monitored across the forest.

4. Long Creek Fish Habitat. At stream crossings on Long Creek, adjacent to Long Creek Road near to Albert Pike Recreation Area, one can see where Forest Service biologists have placed log structures to provide a variety of habitats for fish. Large

debris, such as logs and branches, are important in aquatic ecosystems, but are missing in many streams because of past management. A 5-year monitoring program is underway to see whether these structures will increase the diversity and abundance of fish and other aquatic animals.

5. Paleback Darter Project. The presence of a rare species can indicate a unique aquatic system. The paleback darter, found only in the southern Ouachita Mountains, was once considered a candidate for listing as an endangered or threatened species. Extensive field research as part of the Caddo Learning Center by the Forest Service, Fish and Wildlife Service, and university researchers has shown this species to be more secure than once thought. The Caddo Hills High School biology class has helped monitor one of several known spawning sites for this fish, at an ordinary-looking spring flowing between

6. Caddo Pond. Bringing people together and in contact with water resources is an important goal of the Learning Center. Caddo Pond is an example of one such effort. Caddo Pond offers accessible facilities for physically challenged individuals, as well as opportunities to fish from the bank. In addition to a fishing pier and fishing benches, Caddo Pond features an accessible interpretive trail with a wildflower "butterfly" garden.

Many partners have made Caddo Pond happen: the Montgomery County Highway Department, Bean Lumber Company, Caddo Hills and Kirby High Schools, the Central Arkansas Development Council, and the Arkansas Game and Fish Commission.

Caddo Pond along with other fishing ponds, offer alternatives to streams like the Little Missouri, which at times receive heavy fishing activities. For a complete list of fishing opportunities, contact the Caddo District Office.

A Wealth of Water

Water is the lifeblood of a forest ecosystem. It carries nutrients and fuels photosynthesis for growing plants, enhances decay of leaves and logs, and quenches the thirst of forest animals. Gathered into pools, ponds, and streams, water supports a diversity of interdependent life: insects, mussels, crayfish, plants, salamanders, and fish.

People too are dependent on water from forests. Downstream, water is used to irrigate crops, raise livestock, and fill household faucets. In the forest, people value water for the chance to go fishing, for a cool dip on a summer day, and for the beauty in the sights and sounds of running streams.

Due to coincidences of landform, climate, and geology, the Caddo Ranger District on the Ouachita National Forest has a wealth of water. To help us better understand aquatic ecosystems, and people's relation to these systems, we have established an Aquatic Learning Center on the Caddo Ranger District. Here, the Forest Service and partners have accelerated research, monitoring and protection efforts. We're also providing accessible fishing and environmental education opportunities.

Ecosystem Management

Care and use of the National Forests and Grasslands is guided by an approach called Ecosystem Management. Under this approach, we focus on sustaining forest landscapes for their many benefits and values: Biological diversity, soil fertility, clean water, attractive landscapes, historic and cultural resources, forest products, and diverse human uses. The Caddo Aquatic Learning Center is one of many efforts to continually improve our ecological approach to management across the 1.6 million acre Ouachita National Forest.

For further information on national forests, ecosystem management, or recreation opportunities, contact:

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or

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